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A NEW HIGH ANDEAN SLOPE SPECIES
OF *ELEUTHERODACTYLUS*
(AMPHIBIA: LEPTODACTYLIDAE)
FROM COLOMBIA AND ECUADOR

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Since redescribing *Eleutherodactylus glandulosus* (Boulenger) from the Papallacta valley in Napo Prov., Ecuador (Lynch, 1970), specimens of a closely related new species have come to my attention. Through the courtesies of Dr. William E. Duellman, Museum of Natural History, The University of Kansas (KU), and Drs. W. Ronald Heyer and George R. Zug, National Museum of Natural History, (USNM) I have examined 28 specimens of the new species from the high Amazonian slopes of the Andes along the border of Colombia and Ecuador.

***Eleutherodactylus leucopus*, new species**

Holotype: USNM 197927, an adult male from a series collected at Santa Barbara, Napo Prov., Ecuador, 2590 m, by R. Mullen, M. Olalla, and J. A. Peters, 22 June 1962.

Paratypes: USNM 197928-36, topotypes; 21-22 June 1962.

Diagnosis: (1) skin of dorsum feebly granulate, that of venter coarsely areolate; no dorsolateral folds or enlarged tubercles; (2) tympanum round, prominent, $\frac{1}{3}$ - $\frac{1}{2}$ eye diameter; (3) snout subacuminate in dorsal view, tip pointed, protruding in lateral profile; (4) upper eyelid slightly narrower than interorbital distance; cranial crests present, not prominent; (5) prevomerine odontophores well elevated, oval to triangular in outline; (6) males with vocal slits and external subangular vocal sac; (7) first finger shorter than second; all digits bearing discs on broad pads; (8) fingers bearing lateral fringes; (9) small ulnar tubercles, antebrachial large, non-conical; (10) heel bearing small, non-conical tubercles; inner tarsal fold ridge-like, extending $\frac{1}{3}$ - $\frac{1}{2}$ length of tarsus; outer tarsal tubercles small, non-conical; (11) two metatarsal tubercles, inner oval, 3-4 times size of non-conical outer; plantar surface areolate;

(12) toes bearing prominent lateral fringes, no webs; toes bearing large pads and discs; (13) dark gray above, venter cream flecked with gray; fingers and toes pale cream; posterior thighs, groin dark gray; (14) adults moderate size, ♂ ♂ 30.0–37.8 mm, ♀ ♀ 42.3–44.0 mm SVL.

E. leucopus is most similar to and presumably closely related to *E. glandulosus*. *E. glandulosus* is smaller (♂ ♂ 21.5–26.2, ♀ ♀ 29.4–38.3 mm SVL); has a rounded snout in dorsal view, truncate in profile; has less prominent lateral fringing; and lacks tubercles on the heel and outer edge of tarsus. *E. leucopus* is markedly bicolored with a dark gray to black dorsum instead of brown to yellow-tan of *E. glandulosus*; *E. glandulosus* does not have markedly pale digits. *E. glandulosus* has dark brown areas in the groin and concealed portion of limbs enclosing large yellow spots—neither feature is seen in *E. leucopus*. I know of no other *Eleutherodactylus* species lacking a dorsal pattern and having the markedly bicolor appearance. Few species have protruding snouts (Fig. 1); among Group II *Eleutherodactylus* the feature also occurs in the small Amazonian species *E. acuminatus* Shreve and *E. paululus* Lynch.

Description: Statements listed in the diagnosis are not repeated here unless there is some qualifying condition or variation. Head slightly narrower than body, wider than long, notably flat; head width 35.9–42.0 (\bar{x} = 39.2, N = 28) per cent SVL; tip of snout extending well beyond lower jaw; snout short, E–N 72.9–102.4 (\bar{x} = 90.6, N = 18) per cent eye length in males, 91.7–109.5 (\bar{x} = 100.5, N = 10) in females; nostrils not or only weakly protuberant, directed laterally; canthus rostralis relatively sharp, straight; loreal region weakly concave, sloping abruptly to lips; lips not flared; interorbital space gently furrowed, furrow extending anteriorly onto snout; edges of frontoparietals upturned but cranial crests not prominent; upper eyelid width 77.1–104.3 (\bar{x} = 90.7, N = 28) per cent IOD; supratympanic fold prominent, obscuring upper edge of tympanum, tympanum separated from eye by distance equal one and one-half tympanic diameters; tympanum size not sexually dimorphic, its length 33.8–50.0 (\bar{x} = 41.8, N = 28) per cent eye length; choanae round, relatively small, not concealed by palatal shelf of maxillary arch; prevomerine teeth and odontophores present, latter median and posterior to choanae, separated by distance equal to choanal breadth, each bearing a transverse row of 4–8 blunt teeth along posterior edge; tongue slightly longer than wide, posterior one-third not adherent to floor of mouth, posterior edge bearing shallow notch; males with long vocal slits lateral to tongue.

Skin of dorsal surfaces feebly granulate (least so on head, most noticeable on posterior portion of body and limbs); no distinct tubercles on head except for one postriatal tubercle; body lacking ridges or folds other than supratympanic fold; throat, venter, and underside of thighs coarsely areolate; discoidal folds prominent; no enlarged subanal warts; forearms robust; two palmar tubercles, outer one smaller, neither as large as oval thenar tubercle; numerous flat supernumerary palmar tubercles; subarticular tubercles round, non-conical, simple; fingers

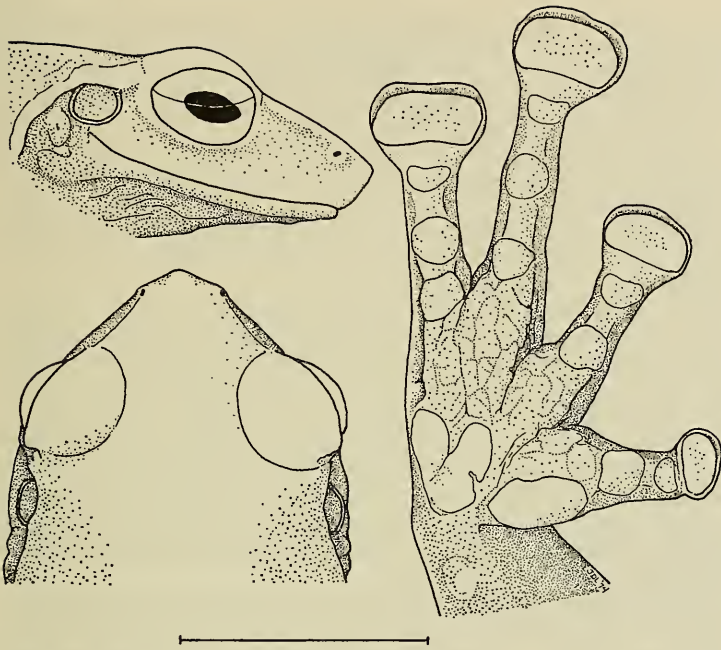


FIG. 1. Head and hand (palmar view) of *Eleutherodactylus leucopus* new species (USNM 197927, holotype). Line equals 10 mm for head, 20 mm for hand.

bearing prominent fringes (Fig. 1), fringes present along outer edge of fingers I and IV as well as outer edge of palm; all fingers bearing discs (broader than long) on large pads; pads round, 2–2½ times digit width below pad except that on thumb which is smaller than pads on fingers II–IV.

Heel bearing one or two small, non-conical tubercles; two metatarsal tubercles, outer longer than wide; inner metatarsal tubercle non-compressed, its length twice its width; many supernumerary plantar tubercles (sole is areolate), all small, flat; subarticular tubercles round, non-conical, simple; toes bearing prominent lateral fringes but lacking distinct webs other than that produced by coalescing lateral fringes; hindlimbs short, heels of legs flexed at right angle to sagittal line just overlap; heel of adpressed hindlimb reaches to between posterior edge of eye and a point between eye and nostril; shank 47.5–56.7 (\bar{x} = 52.5, N = 28) per cent SVL.

Ground color dark gray; some creamy suffusion on flanks; venter cream with gray flecking; undersides of limbs gray with creamy blotches; posterior surfaces of thighs and groin dark gray; distal por-

tions of fingers and toes pale cream; no bars, bands, or dark spots on dorsal surfaces. The spots in the groin and on the posterior surfaces of the thigh are seen in USNM 197939 (JAP 4589) and 197940 (GOV 8534). The latter has a few spots on the dorsum. Neither is otherwise different from the other specimens examined.

In life, *E. leucopus* was "jet black dorsally, with yellowish white pads and toes." Two individuals were noted as having orange or yellow spots on the thighs.

Measurements of holotype in mm: SVL 34.4; shank 17.8; head width 13.6; head length 12.6; upper eyelid width 4.0; IOD 4.4; tympanum length 1.6; eye length 4.1; E-N 3.4.

Natural history: No calling males were so noted by the collectors nor were amplectant pairs found. Adults were found at night sitting on leaves and branches in heavy undergrowth in the montane forests. By day, specimens were found beneath logs and other debris in a clearing of good forest. Three adult females were collected. All have extensive convolution of the oviducts and large, yellow ovarian eggs. One adult female was taken in January and the other two in June. The largest immature female (USNM 197937) is 38.5 mm SVL. A slightly smaller female (KU 140306, 37.2 mm SVL) has moderate size eggs and weakly convoluted oviducts. All males examined appear mature (large testes, vocal slits and sacs present).

E. leucopus is known from intermediate elevations (2440–2700 m) in the valley of the Rio Chingual at localities in both Colombia and Ecuador. In addition to the holotype and paratypes, the following were examined: COLOMBIA, *Depto. Nariño*: La Victoria, 2700 m, KU 140303–07, 140312. ECUADOR, *Prov. Napo*: Santa Barbara, USNM 197940(7); 1 km NW Santa Barbara, 2590 m, USNM 197938(2); 1 km SW Santa Barbara, 2590 m, USNM 197939(2); 3 km SW Santa Barbara, 2440 m, USNM 197937.

Etymology: Greek, meaning white-footed, in reference to the coloration.

Remarks: *E. glandulosus* and *E. leucopus* seem to be geminate species. Neither has apparent close relatives on the Andean slopes or paramo and I am aware of no lowland species sufficiently similar to be construed a close relative. The two species are geographically separated by some 120 km of unexplored Andean slopes in Ecuador.

LITERATURE CITED

- LYNCH, J. D. 1970. Identity of two Andean *Eleutherodactylus* with the description of a new species (Amphibia: Leptodactylidae). *Jour. Herpetol.* 3:135–43.